

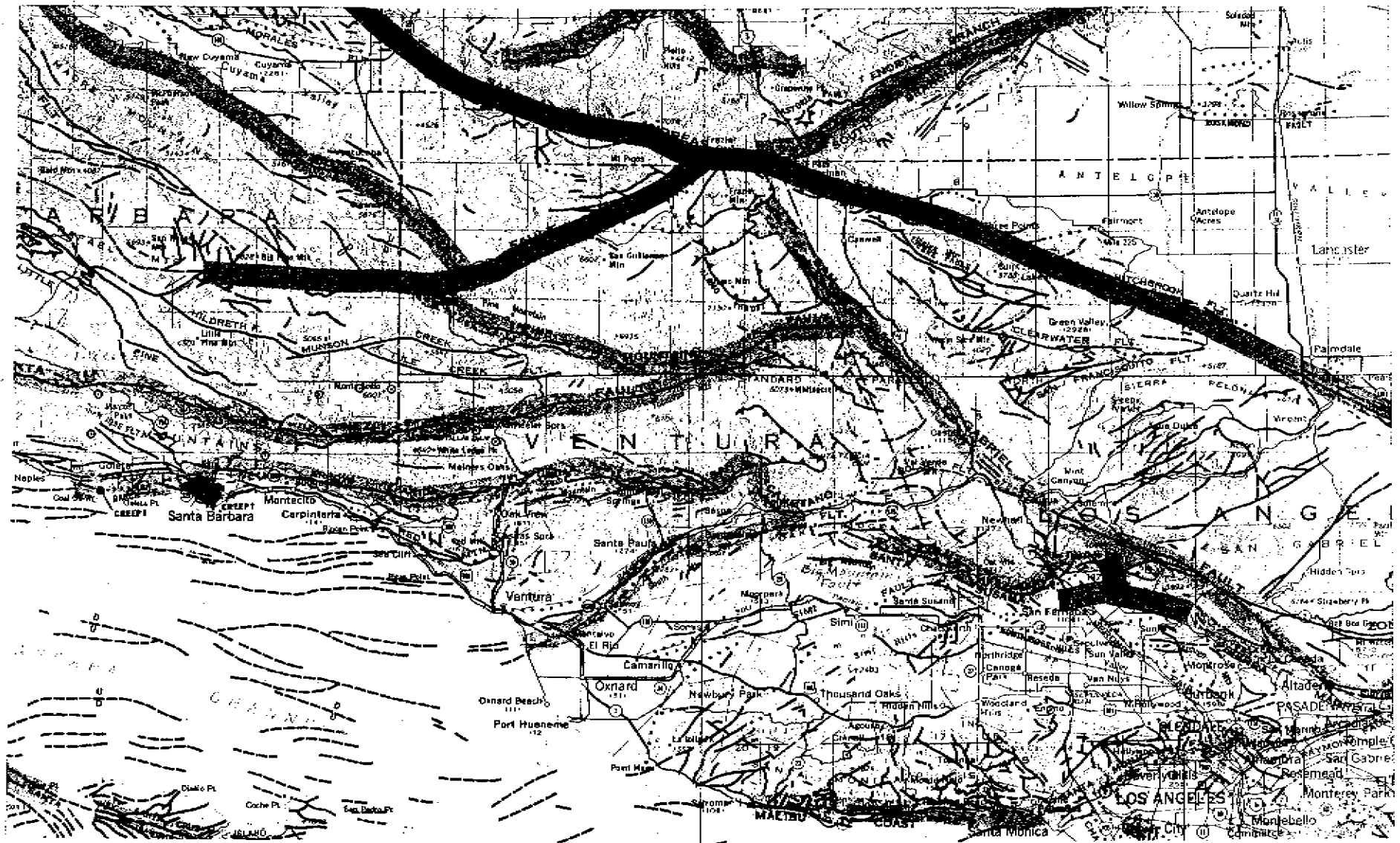
CALIFORNIA DIVISION OF MINES AND GEOLOGY

Fault Evaluation Report FER-65

May 16, 1977

1. Name of fault: Big Mountain fault.
2. Location of fault: Simi 7.5 minute quadrangle, Ventura County (plate 1).
3. Reason for evaluation: Part of a 10-year program.
4. List of References:
 - a) Canter, N.W., 1975, Structure of the Big Mountain area, Ventura County, California (abstract): Geological Society of America, Abstract with Programs, v. 7, no. 3, p. 302.
 - b) Jestes, E.C., 1958, Geology of the Wiley Canyon area, Ventura County, California: Unpublished M.A. thesis, University of California, Los Angeles, map scale 1:12,000.
 - c) Van Camp, Q.W., 1959, Geology of the Big Mountain area, Santa Susana and Simi quadrangles, Ventura County, California: Unpublished M.A. thesis, University of California, Los Angeles, map scale 1:12,000.
 - d) Weber, F.H., Jr., Kiessling, E.W., Sprotte, E.C. Johnson, J.A., Sherburne, R.W., and Cleveland, G.B., 1975, Seismic hazards study of Ventura County, California: California Division of Mines and Geology, Open File Report 76-5LA, 396 p., 9 plates, map scale 1:48,000.
 - e) Ziony, J.I., Wentworth, C.M., Buchanan-Banks, J.M., and Wagner, H.C., 1974, Preliminary map showing recency of faulting in coastal southern California: U.S. Geological Survey, Miscellaneous Field Studies Map MF-585, 15 p., map scale 1:250,000, 3 pl.

FER-65, Figure 1. General location of the Big Mountain fault (~~from~~ after Jennings, 1975,* slightly modified).



* Jennings, C.W., 1975, Fault map of California with locations of thermal springs and thermal wells: California Division of Mines and Geology, California Geologic Data Map Series, Map Number 1, scale 1:750,000.

5. Summary of available data:

Weber, et al. (1975, p. 176) state that the "probable age of latest movement" of the Big Mountain fault is Quaternary. However, the fault shown by Weber, et al. (plate 5B) is not the Big Mountain fault. While they state that they compiled the trace of Van Camp's (1959) fault, they in fact did not. They did show a short fault trace, compiled from Jestes (1958), immediately north of Van Camp's Big Mountain fault. This latter fault is late Pliocene or early Pleistocene in age.

Van Camp (plate 1) depicts the "hypothetical" Big Mountain fault as cutting the Modelo Formation (Miocene) but not cutting lower Saugus Formation (Plio-Pleistocene) at the east end of the fault. Upper Saugus is not cut at the west end of the fault. However, Van Camp apparently never saw the fault in the field. Canter (1975, p. 302) indicates that the Big Mountain fault is a north-dipping reverse fault, and implies that the Fernando (Pliocene) and Modelo Formations are not faulted. However, he indicates that a monoclinial fold in these two units is evidence for the existence of the fault at depth. Both Canter and Van Camp felt that the Big Mountain fault may have moved (at least ^{at depth}) during the Quaternary since an anticlinal axis within the Saugus Formation is superposed on the buried fault. Ziony, et al. (1974), cite Van Camp's version, however, they ignore the absence of faults (as shown by Van Camp) within the Saugus.

6. Interpretation of air photos: None.

7. Field observations: None.

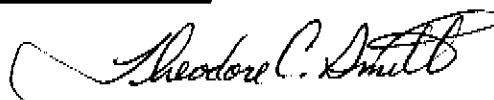
8. Conclusions:

No direct evidence of Quaternary faulting is known. Van Camp (1959), Canter (1975), and Weber, et al. (1975), all speculate that the Big

Mountain fault may have had movement along it during the Quaternary. However, the fault as inferred by Van Camp, appears to cut no unit younger than the Fernando Formation (Pliocene) and appears to be pre-Saugus (Plio-Pleistocene) in age, if the fault even exists. Canter's raw data does not indicate any younger age of faulting. The short fault shown by Jestes (1958) and Weber, et al. appears to cut the Saugus Formation, and thus is probably Plio-Pleistocene or later in age. Neither of these two faults are shown as cutting the overlying stream gravels (Holocene). Thus, the most recent movement along the Big Mountain fault of Van Camp is probably pre-late Pliocene. The most recent movement along the short, unnamed fault of Jestes and Weber, et al. can only be dated as post-Saugus.

9. Recommendations: Zoning of these faults is not recommended based on the information contained in this report. No further work is recommended on the Big Mountain fault or any related faults at this time.

10. Investigating geologist's name; date:



Theodore C. Smith
Assistant Geologist
May 16, 1977

*I agree with
recommendations.
EUB
6/14/77*